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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/973,650
Filing Date: October 09, 2001
Appellant(s): ANSLOW ET AL.

William M. Lee, Jr.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 30 January 2007 appealing from the Office action mailed 17 January 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is incorrect. <u>Based on the interview summary (October 30, 2006) applicant's representative agreed to including claim 9 along with the rejected claims in the appeal brief. Claim 9 and 20 should have been rejected since it is an apparatus claim for the method claimed in 1.</u> A correct statement of the status of the claims is as follows:

Claims 1, 6, 8, 9, 16-20, 27, and 28 are rejected.

Claims 15 and 26 allowed.

Claims 2-5, 7, 10-14, and 21-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5585954	Taga et al.	12-1996
5546325	Aulet et al.	8-1996
6320687	Ishikawa	11-2001
5325397	Scholz	6-1994

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 6, 9, 20 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Taga et al. US 5,585,954 (Taga).

Regarding claims 1 and 9, Taga disclosed

A method of measuring the amplitude distortion component in an optical transmission signal subject to noise and amplitude distortion components, the method comprising determining the amplitude distortion component by analyzing the bit error ratio (BER) of the signal as a function of a movable decision threshold (e.g., Taga col. 4 lines 40-50). It is inherent that measuring Q

and S/N ratios is a measurement of noise and amplitude distortion.

Regarding claim 6 Taga disclosed

the step of providing said BER values by comparing the said signal with a said variable decision threshold (e.g., Taga col. 4 lines 40-50).

Regarding claims 20 and 27 Taga disclosed

An optical receiver comprising detector means to detect optical signals from an optical transmission system and convert them into their electrical equivalent, the receiver comprising measuring means to measure the amplitude distortion component in a said optical signal subject to noise and amplitude distortion components, the measuring means adapted to measure the amplitude distortion component by analysis of the bit error ratio (BER) of the signal as a function of a movable decision threshold (e.g., Taga col. 4 lines 40-50).

2. Claims 8, 16-19 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taga et al. US 5,585,954 (Taga) in view of Scholz et al. US 5,325,397 (Scholz).

Regarding claims 8, 16-19 and 28

Taga does not disclose a method performed by a programmed computer with a stored program. Scholz disclosed a computer that performs a BER rate detection

against thresholds (see Scholz e.g., 57 of Figure 8. It would have been obvious to one of ordinary skill in the art at the time of invention to use a processor to perform a BER threshold calculation because this would allow easy adjustment of the algorithm to fine tune the stored (60 of Figure 8) BER calculation method.

(10) Response to Argument

Ground 1 and 2:

Applicant attempts to distinguish the claimed invention stating claiming that "noise and amplitude distortion components" is somehow different than what is taught in Taga U.S. 5.585,954.

First, examiner disagrees with the interpretation of point 2 found in the January 17, 2006 Final Rejection. The point is not that Taga measures the combined noise and amplitude distortion components, but that by measuring Q values one inherenty measures an amplitude component. And by virtue of any type of signal distortion, one of ordinary skill in the art would characterize such distortion as noise.

To show that Q measurements inherently account for an amplitude distortion component, the following two references are cited. Aulet (USPN 5546325) discloses that Q measurements are directly related to noise, and hence BER. Formula 1 below,

$$Q = \frac{|\text{receiver decision threshold level} - \text{mean of signal level}|}{\text{standard deviation of signal level}} \qquad (1)$$

found in Aulet, at the top of column 4, shows Q as a function of mean signal level. And mean signal level to one of ordinary skill in the art is taken to be equivalent to an amplitude component.

As yet another reference to show the inherent nature of amplitude measurement in Q values, Ishikawa (USPN 6320687), col./line(s): 9/45-60.

> FIG. **29** is a diagram showing the definition of the Q value measured by Q value measuring system **42**, according to an embodiment of the present invention. That is
>
> $$Q=20\ \log_{10}[(\mu_1-\mu_0)/(\sigma_1+\sigma_0)]$$
>
> where
>
> μ_1: average level during "emission"
> μ_0: average level during "no emission"
> σ_1: standard deviation of level during "emission"
> σ_0: standard deviation of level during "no emission"

"The Q value is expressed using the signal level signal amplitude) between emission and no emission as the numerator and the sum difference (of the standard deviations of noise during emission and during no emission as the denominator."

From these two examples, should be readily apparent to one of ordinary skill in the art the when measuring Q values in an optical system one is naturally, measuring amplitude distortion and hence noise.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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August 28, 2007
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